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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/848,609	05/03/2001	Paul E. Laibinis	MTV-031.01	6015

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EXAMINER
WESSENDORF, TERESA D

ART UNIT	PAPER NUMBER
1639	10

DATE MAILED: 02/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/848,609	LAIBINIS ET AL.	
	Examiner	Art Unit	
	T. D. Wessendorf	1639	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *13 January 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-47* is/are pending in the application.

4a) Of the above claim(s) *3,7,8 and 20-47* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1,2,4-6 and 9-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *6* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Election/Restrictions

Applicant's election with traverse of Group I, claims 1-11 in Paper No. 9 are acknowledged. The traversal is on the ground(s) that the simultaneous examination of Invention I and II would not place an undue burden on the examiner because the inventions are related as individual probe and array of said probes. Applicants request modifying the restriction requirement examining Groups I and II together, i.e., claims 1-19. Upon review of the restriction requirement and applicants' assertion that the inventions are indistinct and related, the restriction requirement is revised. Groups I and II i.e., claims 1-19 would be examined in the application.

Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, between Group I and Groups III-VIII, the election has been treated as an election without traverse (MPEP § 818.03(a)).

The requirement is still deemed proper and is therefore made FINAL.

Applicants' election of species psoralen for the crosslinking moiety; ssDNA or dsDNA for target moiety; support-bound capture with multiple oligos for the support and ten

nucleotides for the length of pairing oligo sequences is noted and acknowledged.

Claims 3, 7-8 and 20-47 withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention and species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 9.

Claims 1, 2, 4-6, 9-19 are under examination.

Specification

The disclosure is objected to because of the following informalities: the status of U.S. application Nos. 624,120 and 805,727 recited at page 2, last paragraph have not been provided. Applicants are requested to check for other applications in the specification.

Appropriate correction is required.

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors (typographical, grammatical and idiomatic). Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 2, 4-6 and 9-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over any one of Horn(6, 465,175) et al or Guire et al (6,514,768) in view of Kuimelis et al (WO 99/51773).

Horn et al discloses at col. 9, lines 7-22 a support bound probe "capture extenders," hybridize to the analyte polynucleotide and to capture probes, which are in turn covalently bound to a solid support. Thus, capture extender molecules are single-stranded polynucleotide chains having a first polynucleotide sequence region containing a nucleic acid sequence C-1 which is complementary to a sequence of the analyte, and a second, noncomplementary region having a capture probe recognition sequence C-2. The sequences C-1 and L-1 are nonidentical, noncomplementary sequences that are each

complementary to physically distinct sequences of the analyte. "Capture probes (CPs)" hybridize to the capture extenders and bind to a solid support. Capture probes have a nucleic acid sequence C-3 complementary to C-2 and are covalently bound to (or capable of being covalently bound to) a solid support. Horn further discloses at col. 7, lines 1-60 the total number of oligonucleotide segments in the multimer will usually be in the range of about 3 to 1000, more typically in the range of about 10 to 100, and most typically about The oligonucleotide segments of the multimer may be covalently linked directly to each other through phosphodiester bonds or through other cross-linking agents that are capable of cross-linking nucleic acid or modified nucleic acid strands. Horn discloses a linker moiety as ethylene glycol at col. 11, line 42.

Guire discloses at col. 13, line 8 up to col. 14, line 60 a system (support bound probe as claimed) that includes a multi-ligand conjugate containing a plurality of active (e.g., binding or polymerizable) domains. The individual ligands can be attached to a core atom or molecule in any suitable manner and/or order, e.g., individually or together (e.g., in linear sequence and at a single location or at a plurality of locations). The ligands are attached to the core simultaneously, e.g., under similar reaction conditions. Optionally, the ligand

serving as the third ligand is attached to the core after hybridization between the address oligonucleotide of the master array and the complementary oligonucleotide provided by the multi-ligand conjugate.

Guire discloses a library of target moieties referencing U.S. Patent 5, 770,772 at col. 1, line 66.

Each of Horn and Guire does not disclose a cross linking moiety, psoralen. However Kuimelis et al dislcoses at page 2, lines 17-23 a solid support bound probe comprising an array of immbolized capture probes, each of said capture probes comprising a conjugate of nucleic acid-protein fusion with the conjugate of nucleic acid-protein fusion covalently linked to the capture probe by cross linking with psoralen. At page 10, Kuimelis discloses that the density of the capture probes can be controlled by adjusting reaction time and oligo concentration. See further the Examples at page 17-32.

It would have been obvious to use psoralen as the cross linking moiety in the solid bound probe of either Horn (a single probe) or Guire(array probe) as taught by Kuimelis. Kuimelis teaches that photocrosslinking by psoralen is conventional in the art. It is well known in the art that cross-linking results in a stable component of the probe. One would be motivated to produce a stable cross linked probe since specific hybridization of the

probe with a target leads to pharmaceutical drugs with binding specificity and in vivo stability.

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to T. D. Wessendorf whose telephone number is (703) 308-3967. The examiner can normally be reached on Flexitime.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on (703) 306-3217. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7924 for regular communications and (703) 308-7924 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

T. D. Wessendorf
Primary Examiner
Art Unit 1639

tdw
February 10, 2003